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PHYTOCHEMICAL ANALYSIS OF ETHANOLIC EXTRACT OF ROOTS OF *CARRISA CARANDUS* LINN.

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ABSTRACT

Present study deals with the qualitative analysis of ethanolic extract of roots of Carrisa carandus Linn. In which we isolate 19 Phytochemical which are use full for development & growth of plant. Carissa Carandas Linn. (Karaunda) is a widely used medicinal plant by tribals throughout India and popular in various indigenous system of medicine like Ayurveda, Unani and Homoeopathy. All parts of the plant are used in traditional medicine. Traditionally the plant has been used in the treatment of scabies, intestinal worms, pruritus, biliousness and also used as antiscorbutic, anthelmintic. The notable biological activities reported are analgesic, anti inflammatory, anti pyretic, cardiotonic and histamine releasing. The plant is also an alternative source of oil, hydrocarbon and phytochemicals.

Keywords: Carrisa carandus Linn & Phytochemical.

INTRODUCTION

Carissa carandas Linn. Is a large dichotomously branched evergreen shrub with short stem and strong thorns in pairs, belonging to the family Apocynaceae.*Carissa carandas* Linn is an evergreen diffuse and spiny shrub occurring throughout the country. The plant is very valuable for the Indian System of medicine particularly Ayurveda. It is used for alleviating vata and pitta disorders. Its fruits and seed latex are used for treating rheumatoid arthritis, anorexia, indigestion, colic, hepatomegaly, splenomegaly, piles, cardiac diseases, oedema, amenorrhoea, fever and nervine disorder[1]. The roots are useful in stomach disorder, intestinal worms, Scabies, diabetic, ulcer and pruitis[2]. Hegde and Joshi[3] have been studied the Hepatoprotective effect of ***Carrisa carendus*** Linn root extract against CCl_4 and para acetamol. Hegde has reported Anticonvulsant Activity of *Carissa carandas* Linn[4]. Root Extract on Mice. Physio-chemical test were carried out adopting, standard procedure[5-7].

EXPERIMENTAL

Plant material

The roots of ***Carrisa carendus*** Linn. Were collected from Bhadvan Village, Ajara Tahsil of Kolhapur District, Maharashtra, India during August 2012. It was authenticated by Prof.R.S.Sawant, Department of Botany, Dr.Ghali College, Gadhinglaj, Kolhapur district, Maharashtra.

Preparation of extract

The collected roots of *Carrisa carandus* Linn were washed; the bark was peeled off and then dried under shade. The coarse powder of the roots (76.712g) was soaked in one Liter of 50% ethyl alcohol and extracted in the cold for 3 days with occasional shaking. The solvent from the total extract was filtered & concentrated on water bath for 8 hrs. The remaining was used for the analysis of Phytochemical test.

Chemicals and drugs

All the chemicals and solvents were of analytical grade from SD Fine Chemicals Pvt. Ltd, Bombay

Phytochemical Screening

Steroid

1ml extract was dissolved in 10 ml of chloroform & equal volume of concentrated H_2SO_4 acid was added from the side of test tube .The upper layer turns red and H_2SO_4 layer showed yellow with green fluorescence .This indicates the presence of steroid.

Tannin

i. 2ml extract was added to 1% lead acetate a yellowish precipitate indicates the presence of tannins.
ii. 4ml extract was treated with 4 ml $FeCl_3$ formation of green colour indicates that presence of condensed tannin

Table-1: Phytochemical Analysis
(Notation: + = Present and - = Absent)

S.No.	Secondary metabolite	Result
1	Steroid	+
2	Tannin	
	a. Lead Acetate test	+
	b. $FeCl_3$	+
3	Saponin: Foam test	+
4	Anthocyanin	-
5	Coumarin	+
6	Emodins	-
7	Alkaloids	
	a. Wagner's reagent	+
	b. Hager's reagent	+
8	Proteins: Xanthoproteic test	-
9	Amino acids: Ninhydrin test	-
10	Carbohydrate	
	a. Molisch's test	+
	b. Benedict test	+
	c. Fehling test	-
	d. Iodine test	-
11	Flavonoid	
	a. Alkaline reagent test	+
	b. Lead acetate test	+
	c. NH_4OH test	+
	d. Mg turning test	+
	e. Zinc Dust test	-
12	Diterpenes: Copper acetate test	+
13	Phytosterol: Salkowski's test	+
14	Phenols: $FeCl_3$ test	+
15	Phlobatannins	-
16	Leucoanthocyanin	-
17	Anthraquinone	-
18	Cardial Glycosides	-
19	Chalcones	-

Saponin

5 ml extract was mixed with 20 ml of distilled water then agitated in graduated cylinder for 15 min formation of foam indicates Saponin.

Anthocyanin
2 ml of aqueous extract is added to 2 ml of 2N HCl & NH_3, the appearance of pink red turns blue violet indicates presence of Anthocyanin.

Coumarin
3 ml of 10% NaOH was added to 2 ml of aqueous extract formation of yellow colour indicates coumarins.

Emodins
2 ml of NH_4OH and 3 ml of benzene was added to extract appearance of red colour indicates presence of emodins.

Alkaloids
A quantity (3 ml) of concentrated extract was taken into a test tube and 1 ml HCl was added the mixture was heated gently for 20 min cooled and filter, the filtrate was used for following test.

i. Wagner test: Filtrate was treated with Wagner's reagent; formation of brown reddish precipitate indicates presence of alkaloids.
ii. Hager's test: Filtrate was treated with Hager's reagent, presence of alkaloids confirmed by the yellow colored precipitate.

Proteins
Xanthoproteic test: Extract was treated with few drops of concentrated HNO3 formation of yellow indicates the presence of proteins.

Amino acids
Ninhydrin test: To the 2 ml extract 2 ml on ninhydrin reagent was added & boil for few minutes, formation of blue colour indicates the presence of amino acid.

Carbohydrates
Extract were dissolved individually in 5 ml of distilled water and filtered. The filtrate were used for the following test

i. Molisch's test: Filtrate were treated with 2 drops of alcoholic α-naphthol solution in the test tube, formation of violet ring at the junction indicates the presence of carbohydrate.
ii. Benedict's test: Filtrate were treated with Benedict's reagent and heated gently, orange red ppt indicates presence of reducing sugars.
iii. Fehling test: 2 ml extract were hydrolyzed with dilute HCl & neutralized with alkali & heated with Fehling's solution A and B, formation of red ppt indicates the presence of reducing sugar.
iv. Iodine test: 2 ml of extract were treated with 5 drops of Iodine solution gives blue colour indicates that presence of carbohydrates.

Flavonoid

i. Alkaline reagent test: Extract was treated with 10 % NaOH solution, formation of intense yellow colour indicates presence of Flavonoid.
ii. NH_4OH test: 3 ml of extract were 10 % NH_4OH solution development of yellow fluorescence indicates positive test.
iii. Mg turning test: Extract were treated with Mg turning and add conc.HCl to this solution add 5ml of 95 % ethanol, formation of crimson red colour indicates Flavonoid.
iv. Zn test: 2 ml extract were treated with Zn dust and conc.HCl development of red colour indicates presence of Flavonoid.

Diterpenes
Copper acetate test: Extract were dissolved in water and treated with 10 drops of copper acetate solution, formation of emerald green colour indicates presence of diterpenes.

Phytosterol
Salkowski's test: Extract was treated with chloroform and filtered. The filtrate was treated with few drops of concentrated H_2SO_4 and shakes, allow standing, appearance of golden red indicates the positive test.

Phenol
Ferric Chloride test: Test extract were treated with 4 drops of Alcoholic $FeCl_3$ solution. Formation of bluish black colour indicate the presence of Phenol

Phlobatannins
Deposition of red ppt when aqueous extract of each plant sample is boiled with 1% Aqueous HCl was taken as evidence for presence of Phlobatannins.

Leucoanthocyanin
5 ml of isoamyl alcohol added to 5 ml of aqueous extract, upper layer appear red in colour indicates the presence of Leuanthocyanin.

Cardial Glycosides
Keller-Killani Test: Plant extract treated with 2 ml glacial acetic acid containing a drop of $FeCl_3$ .A brown colour ring indicates the presence of positive test.

RESULTS AND DISCUSSION

Phytochemical screening
Preliminary Phytochemical investigation of the ethanolic extract of the roots of the plant *Carrisa carandus* Linn led to the presence of Flavonoids, Saponin, Steroids, Coumarin, Alkaloids, Carbohydrate, Diterpenes, Phytosterol, Phenols and Tannins whereas Anthocyanin, Emodins, Proteins, Amino acids, Phlobatannins, Leucoanthocyanin, Anthraquinone, Cardiac glycosides and Chalcones were absent (Table-1).
Present study deals with qualitative analysis of root extract of *Carrisa carandus* Linn, On the basis of these data researcher easily isolated particular metabolite from the root extract quantitatively.
Alok Sharma *et al* reported ten Phytochemical such as Carbohydrate, Flavonoid, Protein , Resin ,Saponin ,Starch , Steroids , Tannin and Triterpenoid from the root of *Carrisa carandus* Linn[8].

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